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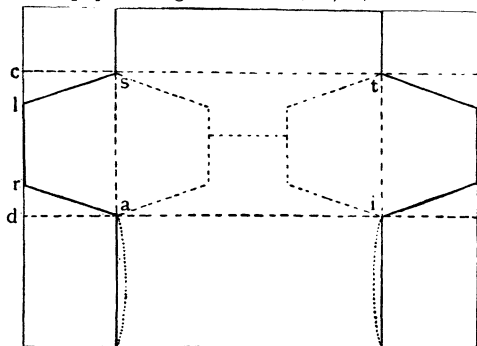
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against *Aceranthus*), and in one the perianth is in a manner reflexed. But both Baillon and Franchet leave out of view a marked character of *Vancouveria*, namely, the unguiculate petals. In *Vancouveria* each petal consists of a long ligulate portion or claw, bearing at its summit an inflexed and bordered lamina, which is the homologue of the always sessile or basal sac of *Epimedium*. We recognize three forms or varieties of *V. hexandra* but can not make out more than one species.—A. GRAY.

**To make pockets.**—Fold a rectangular piece of paper of desired size along the line *dh* and again along *co*; bend the folded paper over a sharp edge (e. g. a tin paper-cutter) so as to mark the points *t*, *i*, *s*, *a*; with scissors cut the folded paper along the lines *sl*, *ar*, *in*, *te*; with knife or paper-cutter cut away



POCKET FOR HERBARIUM.

the two upper layers of the folded paper along the lines *ti*, *as*, so as to leave the sheet when unfolded of the shape shown by the heavier outline. When folded into a pocket the appearance is indicated by the broken lines within *asti*. If the objects to be enclosed are large the lower flap must be cut away as shown by dotted line. These pockets are quickly made after a little practice and are indispensable for fruits, seeds, flowers and smaller specimens. Directions for making a simpler, equally effective but less convenient kind will be found in the June number, p. 142.

**A botanical diary.**—While gathering specimens for preservation in an herbarium, and future study, some device for recording and ready reference to them is very desirable. After trying various plans, the following form of diary was devised, and has worked so well for the fifteen years of trial, that it has become a permanent thing in the economy of the writer.

A plain blank book, of a size suitable for carrying in the pocket, is obtained. It may serve for one year, or several, according to the amount of work done, and entries made. The plants gathered and studied are numbered from 1 to the last entry for the year. At the beginning of each year of work a new numbering is commenced, the year, as a date, heading the list. Two or three lines may serve for entry, unless peculiarities are recorded. If more space is expected to be needed than is used at the time of making an entry, a page or more may be left blank for future use, or whatever is thought necessary. To illustrate, taking some cases at random from the list of 1878:

"2. *Weisia viridula*. On the ground in meadows, Englewood, Ill., Mar. 16, Apr. 13."

"11. *Draba Caroliniana*. Sandy grounds, Englewood, Apr. 13. No. 2. Petals wanting on the later racemes." (This implies that two kinds of specimens were gathered, the second being marked "11, No. 2.")

"198. *Dicranum congestum*. High sandy hills; Boyne Falls, July 30. (Hills southeast of the village, 325 feet above Lake Michigan.) On the ground; loosely caespitose."

Boyne Falls is in Michigan, and Mich. is placed after the name in connection with the first plant collected there.

At the time of placing a plant in the drying papers a card is put with it, corresponding to the number in the note book as "198. 78. *Dicranum congestum*." The latter number gives the year. This card is kept with the specimen till mounted. When mounted, by turning to the corresponding number in the diary, any particulars needed for the label may be found. When a plant is dried for the herbarium an entry is also made on the margin of the page of the botany used in identifying, using the last two numbers of the year in which it is collected. Opening my copy of Gray's Manual to *Hippuris vulgaris*, on the margin are found three numbers, "78, 80, 83." If any information is wanted this becomes an index to show where the information may be found. It saves much time to look it up here instead of in the cabinet, if the specimen itself is not needed. The number on the margin serves also as a record or check list of plants, so that it may not be repeatedly gathered, unless special reasons exist for it.

Note books kept in this way become very useful in the study of geographical distribution. It is an exact record, easy of access. The system is a kind of botanical book keeping, as useful and accurate in its way as that of the accountant.—E. J. HILL.

**Collecting Fossil Plants.**—Fossil plants are to be looked for in the shale above the coal veins, and sometimes in the stigmaria clay below. In the sub-conglomerate coal measures of Arkansas the impressions occur in the shale within 18 inches of the coal. The best are found from 8 to 18 inches above. But few forms are found above 12 inches. Close to the coal is a layer of fragile shale a few inches thick, filled with indeterminable fragments, but sometimes yielding species not found in the firmer rock above. The impressions near the coal are never good, being nearly the color of the shale and much broken. To get the entire range of species it is best to examine all the shale from the coal to the barren rock above, at as many localities as possible. Carboniferous plants grow in clumps as they do in our modern swamps, and were often local. Species collected once at a locality may never be found again, and suddenly a dozen new ones may appear. Always save poor specimens of new or doubtful forms, but discard the small fragments of well-known and common species. Reverses, unless large and fine, are worthless. Break open any nodules found, as they often contain plant remains. Keep all the parts of an impression together when broken, as they may be mended by cement, or set in position in a plaster of Paris base. Better leave considerable shale with a good impression than run the risk of breaking it by trimming.

In shaping, a meat saw can be used to good advantage on fragile shales free from nodules. A pair of pincers is useful, also a wooden clamp to prevent forcing while trimming with a hammer. Shale from the coal measures of Arkansas, if dried either in the sun or shade without being exposed to rain, will